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## THE POINT OF ORIGIN OF SO-CALLED BRONCHIAL RESPIRATION.

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IN the report of the proceedings of the Boston Society for Medical Observation, November 18, 1875, some statements were made in regard to the point of origin of the so-called bronchial respiration. Subsequent experience having confirmed the views then advanced, they can now be stated more fully.

Though it is a well-recognized fact that the sound called bronchial respiration may be transmitted from the throat, it is also thought to originate in the bronchi themselves. It is easy to demonstrate, however, that the passage of air through healthy bronchi never gives rise to such a sound. If care be taken, in a full and rapid inspiration, to avoid the production of any sound in the nares, pharynx, or larynx, no sound will be heard over the trachea or larger bronchi, where the so-called tracheal or bronchial respiration is very distinct when produced in the parts above.

It is very difficult, however, to breathe without causing vibration of the parts mentioned. Ordinary hospital patients, with low intelligence, seem to be incapable of doing this, and particularly in those forms of thoracic disease which give us an opportunity to test the accuracy of the statement, owing to the dyspnoea which so often accompanies them. Moreover, a third person is necessary to listen at the mouth of the one who is breathing, to be sure that no sound is produced there. To prevent such sound all movement must be avoided in the parts above the trachea, over which the air passes.

A patient with chronic catarrhal pneumonia of the right apex, in whom there was the so-called bronchial respiration, was requested to inflate the chest and then remain perfectly immovable. At the moment when the chest was at rest, air was forced through a glass tube against the soft palate, producing a blowing sound, which was heard as bronchial respiration by a person whose ear was applied to the chest. If during respiration no sound was caused by the passage of air through the parts above the trachea, none was heard by the ear applied to the chest.

Similar experiments with the glass tube in cases of pleurisy and pneumonia have given similar results.

As the mode of formation of this sound has been much discussed, it may be interesting to consider the various theories advanced to explain it.

Laennec described as bronchial respiration that originating in the larynx, trachea, and larger bronchi, and even in the smaller bronchi, although he supposed that the sound in the latter was covered up by the usual respiratory murmur. He believed, however, that when the pulmonary tissue was in any way condensed and the respiratory murmur had considerably diminished or disappeared, the bronchial respiration was heard not merely in the large passages but also in the smaller ones. This he supposed was owing to the compression or infiltration of the lung, which prevented the entrance of air into the vesicles, and that therefore bronchial respiration only was produced and was more easily detected as the pulmonary tissue had become a better conductor.

This view Skoda very properly rejected, as it was obvious that a lung would draw less and less air through the bronchi as it became solidified, and finally would become incapable of inhaling or expelling air. He<sup>1</sup> consequently attributed the bronchial respiration to consonance, making the more rigid bronchi reflect and increase the respiratory sound originating in the larynx, trachea, and bronchi. As a proof of this he called attention to the fact that "if auscultation were repeated frequently in hepatization of the lung, resonance of the voice was found at one time increased and again very slight, without any change in the amount of infiltration of the lung as far as could be ascertained by other signs, particularly percussion." This disappearance and reappearance of the increased vocal resonance, while the condition of the lung remained the same, he thought required some other explanation than an increase through the greater conducting power of the indurated lung.

Moreover, bronchophony might disappear and return after a full inspiration and still more after cough. It was also very likely to be absent if the patient had not coughed or expectorated for some time.

This, he maintained, showed that the voice was heard through the hepatized portion, when the bronchi which permeated it were not obliterated by fluid, and contained air; and that, on the contrary, it was no longer heard when the bronchi were obstructed by mucus.

He then said that if the increased resonance of voice were owing to the greater conducting power of the hepatized portion of lung, it would make no difference whether the bronchi contained air or fluid.

He also contended that if conduction of sound were the only element,

<sup>1</sup> *Abhandlung über Perkussion und Auscultation.* Wien, 1864.

the vocal resonance would increase with the amount of fluid in effusion in the pleural cavity, whereas the resonance became less as the fluid became more abundant.

Oppolzer also regarded bronchial respiration as the result of consonance,<sup>1</sup> for the production of which the following conditions were considered necessary:—

(1.) That the air should be nearly or quite expelled from the affected alveoli.

(2.) That the hepatized part should be of such an extent that it should contain at least one bronchus of a certain size.

(3.) That this bronchus should be in free communication with the larynx.

These conditions being present, the respiratory murmur produced in the larynx, trachea, and large bronchi resounded in the bronchus inclosed in the hepatized lung.

Schweigger<sup>2</sup> explains the phenomena as follows: The larger the number of air-passages which are free from mucus and filled with air, the larger is the surface which may vibrate and communicate its vibrations to the tissue with which it is in contact.

This Skoda accepts by saying that "Schweigger has said nothing more than I assert."

Gerhardt,<sup>3</sup> after describing the meaning of the sound heard over the larynx, trachea, or the seventh cervical vertebra, adds, "This is called tubular laryngeal tracheal or, as it in all probability has its origin in the same way in the bronchi, bronchial respiration. Such is also heard in auscultation of the cavities of the throat and nose."

But he states on page 166 that the *primary* murmur is caused in inspiration by the passage of the current of air through the posterior nares into the pharynx, and through the glottis into the cavity of the larynx and trachea.

The *respiratory* murmur is caused by the passage of the air from the narrow glottis into the larynx above, and also where the narrower branches of the bronchial tubes open into the wider.

Flint<sup>4</sup> considers that bronchial respiration is "produced within the trachea, the primary bronchi, and probably also within the subdivisions of the latter."

Guttman<sup>5</sup> defines bronchial respiration as a collective designation for the respiratory murmur heard *physiologically* in the larynx and trachea, *pathologically* in all the larger bronchi. He considers that it arises in the larynx and is caused by the passage of the current of air through the rima glottidis during expiration and inspiration.

<sup>1</sup> Oppolzer's Vorlesungen. Erlangen, 1870.

<sup>2</sup> Über die sog. consonirenden Geräusche. Virch. Arch., vol. II., page 258.

<sup>3</sup> Lehrbuch der Auscultation und Percussion. Tübingen, 1871.

<sup>4</sup> Respiratory Organs, page 172.

<sup>5</sup> Lehrbuch der klinischen Untersuchungs Methoden. Berlin, 1874, page 139.

These authors probably represent very fairly the views entertained in regard to the origin of bronchial respiration. All assert that it may originate in the bronchi, with the exception of Guttman, who limits it too closely to the larynx. Careful observation shows that it may arise in the nose, lips, or throat, depending both upon the movements of these parts and the rapidity with which the current of air passes over them. When a similar sound has its source below the larynx it implies some abnormal condition of the parts by which vibrations are excited in the current of air, — such conditions, perhaps, as might be found in advanced catarrhal pneumonia, when the lung has been more or less extensively destroyed, — but the requisites for its *production* are not found in simple consolidation or in effusions into the pleural cavity.

We must, however, admit that the sounds formed in or above the rima glottidis may be modified by the character of the passages or cavities which they enter, or that of the adjacent tissues. Dr. Langmaid, at the meeting where this matter was discussed, alluded to the fact that the bones of the head vibrate greatly, and stated that advantage was taken of this to get harmonic notes in which the trachea and bronchi took but little if any part. This seems to be only an example in the *head* of what is generally spoken of as *consonance in the chest*. For the production of the latter sound it is necessary that some change should take place in the pulmonary tissue, which increases its consistency either through disease or compression, so that the bronchi connected with it may respond more readily to and reinforce the waves of sound transmitted from the larynx or parts above.

The object of this paper is to show *where* bronchial respiration *originates*. If the views advanced be correct, the question which has so long agitated the medical world, in regard to the relative claims of conduction and consonance, seems to be simplified. There is certainly no doubt that the sound traverses a certain interval to reach the ear applied to the parietes, and that it is modified in various ways by the media through which it passes, or that, in other words, these media are also made to vibrate in connection with the primary sound. *We have therefore both conduction and consonance*. The sole task is to determine the relative agency of each.

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#### DIPHTHERIA AND CROUP: THE ANNUAL REPORT FOR THE SUFFOLK DISTRICT MEDICAL SOCIETY.<sup>1</sup>

BY T. B. CURTIS, M. D., REPORTER.

HAVING been appointed to present to the Massachusetts Medical Society the annual report of the Suffolk District branch upon *subjects of local interest connected with the practice of medicine*, I thought that the

<sup>1</sup> Read before the Massachusetts Medical Society, June 13, 1877.



epidemic of diphtheria now in progress would furnish the most acceptable subject for our consideration. The very great mortality already occasioned by this intractable and justly dreaded disease, and the great number of cases which are probably yet to be encountered before the present outbreak shall have run its entire course, seemed to render it without any doubt the most important event of the year to all the members of the medical profession here present. As it is manifestly impossible as well as undesirable that I should attempt on such an occasion to treat the vast topic of diphtheria in all its bearings, my remarks will be limited to certain aspects of this interesting subject. I propose, then, to consider the views which have obtained and which now prevail among the medical profession of this community regarding the significance which should be attached to the word *diphtheria*, and to discuss the relations existing between this disease and so-called *croup*.

What do we understand by diphtheria? The word itself is of comparatively recent origin, having been first devised by Bretonneau in 1826. Derived from the Greek *διφθίρα*, meaning *membrane*, it was applied by its originator to a *specific infectious* disease, of which the main characteristic consists in the formation of *false membranes* upon certain mucous membranes and abraded surfaces, and which is accompanied by more or less marked general symptoms of *asthenia*, supposed to be due to a constitutional infection. The new word, and what is of far greater moment, the *new idea* of a specific, morbid entity, embracing all the forms and varieties of pseudo-membranous disease, conceived by Bretonneau, and fully developed by his illustrious pupil, Trousseau, have been as yet but slowly and incompletely assimilated by the medical profession of this country and of Great Britain. The so-called diphtheria did not make its appearance at all in the registration of Massachusetts until 1858, when eighteen deaths were returned under the new designation. In 1859 Dr. B. E. Cotting published a paper on Diphtheritis, or the Membranous Disease commonly called Croup, in which the views of Bretonneau and Trousseau were promulgated, and in which the unity of the various forms of pseudo-membranous disease was clearly set forth and strongly insisted upon. In that year the deaths attributed to diphtheria in the State were thirty-two. In 1860 there were two hundred and thirty-eight deaths so recorded, and they continued to increase rapidly in number till 1863, when the fatal cases reached one thousand four hundred and twenty.

Notwithstanding the recent introduction of this new designation into our mortality records, it is impossible, as Dr. Cotting showed, to recognize in diphtheria a new disease. Its great antiquity was asserted by Bretonneau and by Trousseau; and Dr. Squire, in his article on diphtheria in Reynolds's *System of Medicine*, considers that it is demonstrated to have existed in the earliest ages of medical history. The disease can-

not even be regarded as new to this part of the world, for it was most unmistakably described in its various forms as long ago as 1771, by our distinguished countryman, Samuel Bard, the precursor of Bretonneau, as he is styled in the recent treatise on diphtheria of Sanné. Where, then, are we to look for earlier records of the disease now called diphtheria? If we examine the registration reports of Massachusetts, we find recorded, year after year, under the designation "croup," a varying proportion of fatal cases, constituting on an average from 2.5 to 3 per cent. of all deaths in the State. Upon the appearance in our mortality records of the so-considered new disease, diphtheria, the proportion of deaths attributed to croup began to diminish, so that from 1865 to 1874 deaths by this disease had sunk from nearly 3 per cent. to but 1.6 per cent. of all deaths. If, however, to these so-called cases of croup we add the deaths returned under the new name of diphtheria, we thereby restore the full proportion of our yearly mortality formerly attributed to croup alone, namely, 2.5 per cent. of all deaths. With regard to the comparative frequency of the use of the two designations now employed, we find considerable yearly variations, the cases returned as diphtheria growing, however, yearly more numerous in comparison with cases returned under the obsolescent name of croup. During the present epidemic the predominance of diphtheria in our returns has been greater than ever before, the deaths attributed to this disease in 1876 having been over four times as numerous as those imputed to croup.

It is evident from these facts that the *croup* of our earlier registration comprised the *diphtheria* of to-day, and that we have now two names under which certain fatal cases are recorded where we formerly had but one. It appears, moreover, that the new designation is gradually supplanting the older one, the diagnosis croup becoming yearly more unfrequent among us as compared with the diagnosis diphtheria. The question now arises: What does this change in our nomenclature signify? Is it merely the partial substitution of one word for another, the thing designated and our conception of it remaining unchanged? Or has the thing designated, namely, the disease to which the words are applied, undergone a modification, a "change of type," so that we now have to do with two distinct morbid entities instead of one? Or, the diseased states remaining what they were, have our ideas regarding their nature partly changed, so that diverse opinions now prevail, requiring different words for their expression?

There can be, I believe, but little doubt that the last supposition is correct. The disease is in itself unchanged, but opinions differ with regard to its nature. Some, on the one hand, adopting the views advocated by Dr. Cotting in 1859, hold that all cases of pseudo-membranous throat disease are similar in nature, being dependent upon a common specific infection; and that the marked diversity of the symptoms re-

sults partly from the varying localizations of the false membrane and partly from the variable intensity of the general symptoms of blood-poisoning. By these the word "croup" is applied to the pseudo-membranous invasion of the larynx, which constitutes one of the most frequent and important localizations of the morbid process. Croup, then, according to this view, is never a disease, but only an affection constituting one of the most common symptoms of the constitutional disease called "diphtheria." By those who are of this way of thinking, the word croup is never used in diagnosis, and all cases of pseudo-membranous disease, including primary membranous laryngitis, are registered under the name of diphtheria. Other authors and practitioners, however, while recognizing the specific disease just mentioned, believe in the existence of yet another pseudo-membranous laryngitis, distinct in its nature, and clinically distinguishable from that due to the laryngeal localization of the diphtheritic process. These, therefore, now recognize two forms of membranous disease, one the result of a specific constitutional infectious disease, which they call diphtheria; the other a simple inflammatory, idiopathic, local disease, which is characterized by the formation upon the respiratory mucous membrane of a false membrane and by the suffocative effects thereby mechanically produced. This disease they call croup.

Thus we see that formerly all the various forms of membranous disease were regarded as examples of a purely local and inflammatory disease which was called croup; that now Bretonneau's conception of a specific infectious constitutional disease governing the various pseudo-membranous localizations has so far gained ground as to have entirely supplanted in some minds the ideas formerly prevailing; but that a small and gradually diminishing proportion of practitioners still cling to the old denomination, with the idea thereunto attaching of a local unspecific disease, and refuse to recognize as diphtheria certain exceptional cases of localized membranous disease unattended by obvious general symptoms of diphtheritic dyscrasia. Some of these, admitting the gradual diminution of the frequency of croup, assert that the change is to be accounted for upon the supposition that the simple membranous disease of the past is gradually disappearing before a new type of recent development. The masterly descriptions of disease left to us by Bard suffice, however, to negative any such hypothesis. Moreover, there can be no doubt that disease is less liable to become modified than opinion, and the change in our records is sufficiently as well as more plausibly accounted for by the widespread and growing acceptance of the specific morbid entity conceived by Bretonneau.

Upon what evidence, now, does the dualistic view of an idiopathic croup or pseudo-membranous laryngitis, distinct from laryngeal diphtheria, rest, and what are the characters by which this form of disease

is to be distinguished? Croup, it is said, occurs sporadically, and is not contagious or infectious, is not what is popularly called "catching;" it prevails almost exclusively in infancy or in early childhood, while diphtheria is seen chiefly at later ages, or in adults; it is sthenic and inflammatory in character, and is unattended by the symptoms of septicæmia observed in diphtheria; it is rarely if ever accompanied by albuminuria or by swelling of the cervical glands, and is not followed by paralytic sequelæ, as is frequently the case with diphtheria; and finally, the false membrane of croup, although anatomically identical with that of diphtheria, differs from the latter in its distribution, being limited to the respiratory mucous membrane.

Now in answer to these alleged reasons for distinguishing the so-called "croup" from diphtheritic laryngitis, the following objections must be made. In the first place with regard to non-transmissibility as a feature of croup, no demonstration of this alleged fact has ever been attempted. If in many cases of that form of diphtheria which is liable to be called *croup*, the tendency of the disease to spread has not been observed, this circumstance is sufficiently accounted for by the difficulty of recognizing transmission in diseases which are not intensely contagious, and also by the fact that this localized form, at all times exceptional, is chiefly observed at times when the epidemic influence of diphtheria is absent or but slightly marked. Moreover, croup has been described as occasionally taking on an epidemic character by some of the authorities (for example, Steiner), who still differentiate it from diphtheria. Finally, cases are on record in which croup has apparently been caught from diphtheria, while others exist in which diphtheria has been caught from croup. J. Lewis Smith, who describes a non-diphtheritic pseudo-membranous laryngitis, of which he says the diagnosis is ordinarily easy, relates a case<sup>1</sup> of croup in a child which proved fatal. "Two or three days after the death of the child, the two young women who nursed him were affected with severe diphtheritic pharyngitis, with the characteristic pseudo-membrane." A still more striking example of the infectious, diphtheritic character of croup is given by Dr. B. Edson (of Brooklyn), who described recently<sup>2</sup> a localized epidemic of diphtheria which took place in a home for destitute children. Twelve cases occurred in all. "Eight of the cases," says Dr. Edson, "were beyond question cases of diphtheria. The remaining four, had they occurred sporadically, would unquestionably have been considered typical cases of true croup, being clearly laryngeal throughout their entire history. Occurring, however, as they did in close succession, — due beyond question to the same local cause, — it was deemed warrantable, if not absolutely correct, to consider them all cases of diphtheria."

<sup>1</sup> Diseases of Infancy and Childhood, Philadelphia, 1876, page 239.

<sup>2</sup> New York Medical Record, May 5, 1877.

The second argument in favor of an idiopathic croup is based upon the difference of the ages at which croup and diphtheria chiefly prevail. It is, however, easy to see why diphtheria should appear under the form attributed to croup more frequently in infancy than at later ages. In the first place, the insidious first approaches of diphtheria are liable to pass unnoticed in infants and young children, and should attention by chance be directed to the fauces in the early stage of the disease, before the invasion of the larynx has taken place, the insubordination of the little patient is often such as to render a local inspection negative in its results. On the other hand, as was pointed out by Trousseau, the conformation of the larynx is such in the first years of life as greatly to facilitate obstruction and to favor the rapid development of asphyxic symptoms. At later ages, on the other hand, the larynx is less easily obstructed and the tendency to suffocation is less marked, so that in adults the symptoms characteristic of croup are hardly ever observed; asphyxia is observed in them only after a prolonged duration of the disease, when unusually large accumulations of false membrane have taken place throughout the larger air-passages, and at a time when a very pronounced condition of constitutional infection has had time to supervene. Hence the almost invariable failure of tracheotomy in the diphtheria of adult patients. It seems quite evident, then, that the difference of the symptoms observed in infancy and at later ages should be attributed not to a difference residing in the disease but to a difference in the subjects.

The relatively sthenic character attributed to croup is accounted for by the selection of a particular type of diphtheritic disease to which this name is given. The cases chosen to represent croup are those in which the suffocative symptoms of purely local and mechanical origin, due to the laryngeal false membrane, predominate. In this type of diphtheritic disease the constitutional symptoms hardly have time to be appreciably developed or may be entirely absent. Such cases are, however, but examples of one extreme type of the disease, the opposite extreme type comprising cases in which the general symptoms by their early and excessive development overshadow or forestall the local manifestations. Between these extreme and widely differing varieties an uninterrupted series of intermediate forms is observable, in which the local and general symptoms vary respectively in intensity. Some of the distinctive features attributed to croup have another source; there are good reasons for the suspicion that a considerable proportion of cases of "croup" terminating in recovery are in reality cases of spasmodic laryngitis or "false croup." Hence the sporadic appearance, the sthenic character, the absence of sequelæ, and the gratifying efficacy of treatment by emesis, attributed to croup by some authors.

As for the alleged absence in croup of certain phenomena supposed



to be characteristic of diphtheria, namely, albuminuria, enlargement of the cervical glands, and secondary paralyses, it is by no means an established fact that these phenomena do not occur in that form of pseudo-membranous disease by some called croup. Albuminuria and adenitis are admitted to be not unfrequently observed in croup by some of those who contest the diphtheritic nature of this form of membranous disease (for example, Steiner). Moreover, the albuminuria and the paralytic sequelæ are so often lacking in cases of unquestionable diphtheria, and so often present in connection with other diseased states, as to have in themselves but little diagnostic or nosological significance.

The last alleged distinctive feature of croup, or pseudo-membranous laryngitis, as it is sometimes called in order to emphasize its localized character, with which we have to deal, is the restriction of the false membrane to the larynx and remainder of the mucous membrane of the larger air-passages. It is a well-known fact that in diphtheria the characteristic false membrane is occasionally absent from the fauces, or at least escapes detection. Curiously enough, however, the authors who describe a croup distinct from diphtheria almost all admit that in croup the false membrane usually occupies the fauces (tonsils, uvula, and palate) as well as the larynx. According to these authorities the pharyngeal membrane, upon which by the way they lay but little stress, is described as differing in no respect from that of diphtheria, being similar in appearance, identical in structure, and similarly attended by glandular enlargements. John Ware, in his admirable monograph on Membranous Croup, written in 1842, says that the state of the fauces was observed and noted by him in thirty-three cases, and that of these in thirty-two a false membrane was present, most frequently and sometimes only on the tonsils, sometimes on other parts, as the palate, uvula, and pharynx. "From this statement," said John Ware, "it seems probable that the appearance of a false membrane upon the tonsils or other visible part of the throat in a case of croup may be regarded as a pretty certain diagnostic sign that it is the membranous form of the disease, and its absence as a pretty certain indication that it is one of the other forms." This careful observer, then, considered the presence of a pharyngeal membrane so frequent as to be almost pathognomonic of the membranous form of disease, which he was trying to distinguish from the other and less grave forms of laryngitis, inflammatory and spasmodic. Now if this pharyngeal membrane, which in all times has been found by careful observers to precede or coexist with croup in the great majority of cases, is not diphtheritic, what is it? And if we admit its identity with the similar false membrane of diphtheria, does it not follow that the membranous croup which it accompanies must also be diphtheritic?

We see, then, that none of the alleged characteristics of croup suffice to differentiate this form of pseudo-membranous disease from diphtheria.



On the contrary, all the features of croup, as described by those very authors who refuse to acknowledge its diphtheritic nature, are clearly significant of its specificness and of its identity with diphtheria. Its specific character is shown by its occasionally taking on an epidemic course, — to say nothing of its contagiousness, admitted by some of its upholders, — by the extreme rarity of its recurrence in subjects previously affected, and perhaps also by the very considerable mortality which attends tracheotomy in this disease as compared with the results of the same operation in cases of purely mechanical obstruction of the larynx. Its identity with diphtheria is manifest when we consider the similarity of their ætiological conditions, the coincidence of their epidemic outbreaks, and the fact that both forms are liable to occur as sequelæ after certain fevers, the identity of structure and distribution of the characteristic false membrane, and the similarity of certain accessory symptoms, such as albuminuria and the swelling of the submaxillary glands. Finally, such trifling differential characters as have ingeniously been attributed to croup in the effort to distinguish it from the diphtheritic form of laryngitis are clearly dependent upon differences of degree and not of kind, the extreme form disassociated from diphtheria under the name of croup being uninterruptedly connected with the most manifestly specific type of diphtheria by a gradational series of intermediate forms.

Such is the evidence. Inasmuch as the burden of proof must be held to lie with those who assert the existence of two distinct membranous diseases where formerly but one, however called, existed, and where now but one is recognized by those who have most contributed to our knowledge of the disease, I think our decision must be that the upholders of croup as an idiopathic disease have failed to establish their case. Consequently, and in accordance with the canon of Newtonian logic which prescribes that causes should not be multiplied without necessity, it is desirable that we should all admit the unity and specific nature of the pseudo-membranous disease, by whatever name it be called.

The importance of correct notions upon the relations of croup to diphtheria, involving the entire and unanimous acceptance of the morbid entity established by Bretonneau and Trousseau, rests partly upon the danger of regarding and treating a certain proportion of diphtheritic cases as if they were examples of a simple, non-transmissible disease, and partly upon the diagnostic confusion likely to arise between spasmodic and diphtheritic croup. This confusion, to clear up which John Ware wrote his celebrated paper, and which has been and still is so frequent in practice, however at variance with established theories, is liable to be perpetuated so long as the erroneous conception of an unspecific, æthenic, localized membranous croup remains to bridge over the abyss which should separate and distinguish the two diseases.

The dangers likely to attend the management of a case of croup treated upon the mistaken assumption of a non-diphtheritic nature are twofold: in the first place isolation is likely to be neglected, so that the disease will be allowed to spread through families and among neighbors. Secondly, practitioners who look upon the disease as simply inflammatory and sthenic in character are likely to overlook or underestimate the paramount necessity of avoiding all depleting, debilitating, distressing, or even fatiguing treatment, and of insisting from the beginning upon tonic and restorative measures relating to nutrition, stimulation, and rest.

Fully as important to avoid as the dangers just hinted at is the confusion of two diseases so dissimilar in prognosis and treatment as spasmodic laryngitis and diphtheritic or membranous croup: the one invariably of short duration and of happy termination, the other attended by an excessive mortality; the one admitting of sure and rapid relief by therapeutical measures, the other almost entirely refractory to all modes of treatment; their only point of resemblance lying in the difficulty of breathing, which constitutes almost the only symptom of the one and the most striking symptom of the other. For this confusion, certain of our text-books are partly responsible, inasmuch as they disseminate and perpetuate the erroneous notion of a simple, inflammatory, localized membranous croup, unattended by pharyngeal membranes or by any of the other characteristics of diphtheria. Authority is thus lent to the maintenance of a type of disease having no foundation in reality, and corresponding only to inadequately observed cases of diphtheritic croup or to cases of spasmodic laryngitis, magnified by an ill-regulated imagination into cases of membranous croup. The diagnosis "croup," as too commonly made, is applied to two distinct sets of cases: one set, in which a fatal termination by asphyxia is almost the rule, is composed of cases of primary diphtheritic croup; the other set comprises cases in which no false membrane is seen, and which terminate in a speedy recovery, to the delight of the parents and to the satisfaction and glory of the medical attendant. It is upon the degree to which the latter class of cases predominate among a physician's cases of "croup" that his success in coping with that imaginary form of disease depends. The more scrupulously he eliminates from his records of croup such cases as terminate favorably unattended by any visible false membrane, the more unsuccessful will his treatment of the disease appear. "Membranous croup," said John Ware, "unquestionably does sometimes come to a favorable termination; but recovery is comparatively so rare, it forms so much the exception, that admitting the distinctive character of the disease it is difficult to conceive that the treatment has anything to do with the recovery." "Thus," says Dr. Jacobi, "very little reliance can be placed on the judgment and the

diagnostic powers of such as save a large majority of their cases or who rely on infallible pet remedies." These remarks apply not only to croup but also to a considerable proportion of cases diagnosed and reported under the designation of diphtheria. There is no doubt but that much of the successful treatment of diphtheria of which we read such extraordinary statements in our journals must be accounted for by the diagnostic confusion of pharyngeal diphtheria with comparatively harmless forms of sore throat, such as tonsillitis, faucial catarrh, herpetic angina, mild scarlatinal sore throat, etc.

With a view, then, to the establishment of more logical and more clearly defined nosological conceptions, and in furtherance of the acquisition of unequivocal testimony, relating to the management of the epidemic disease with which we are coping, I would respectfully submit that it is expedient for us to recognize the specific unity of the pseudomembranous disease in all its forms, and to discard from our nosology and registration the designation "croup."

## RECENT PROGRESS IN MEDICAL CHEMISTRY.

BY E. S. WOOD, M. D.

### URINARY CHEMISTRY.

**Albuminuria.**—M. Letulle<sup>1</sup> reports two cases of albuminuria occurring during the progress of lymphangitis. In both cases the amount of the albumen increased while the temperature remained high (40.3° and 40.8° C.), and gradually diminished with the lowering of the temperature and recovery from the lymphangitis. In both cases granular casts were found in the sediment, but these disappeared with the albumen.

Weinberg<sup>2</sup> found albuminuria in thirty-three per cent. of his cases of delirium tremens; he noticed that the albuminuria was exactly coincident with the delirium, and also that the amount of albumen corresponded with the intensity of the delirium,—the more severe the delirium the greater the amount of albumen, and *vice versa*. In no case did the urine contain any abnormal sediment.

J. Stolnikow<sup>3</sup> gives a ready method for estimating the amount of albumen in the urine clinically. It is as follows: Dilute the urine with distilled water, until a little of the mixture poured into a test-glass just gives a white zone of coagulated albumen when treated with concentrated nitric acid. The nitric acid should be added to the diluted urine as in performing Heller's test, and the test-glass should be al-

<sup>1</sup> Centralblatt für die medicinischen Wissenschaften, 1877, No. 12, page 316, from *Gazette des Hôpitaux*, 1876, Nos. 130 and 133.

<sup>2</sup> Centralblatt für die medicinischen Wissenschaften, 1877, No. 6, page 112, from *Berliner klinische Wochenschrift*, 1876, No. 32.

<sup>3</sup> Centralblatt für die medicinischen Wissenschaften, 1876, No. 45, page 811.

lowed to stand forty seconds, at the end of which time the zone should be visible. The calculation is then made by dividing the number of volumes of water required for this dilution *plus* the volume of the urine by two hundred and fifty, which will give the percentage of albumen in the urine. This relation was determined by a large number of exact quantitative analyses.

C. Méhu<sup>1</sup> denies the existence of mucus, properly so called, in either normal or pathological urine. The sediment, which is always visible even in healthy urine, and which consists of a variety of morphological elements, such as epithelial cells and *débris*, leucocytes, etc., is improperly termed mucus, since it never contains that albuminous substance characteristic of mucus, namely, mucin. Mucin has well-defined properties, and is easy to distinguish from that variety of albumen which does exist in the urine. It is soluble in water, not precipitated by heat alone, precipitated by both acetic and the mineral acids, the precipitate being insoluble in an excess of the acetic but soluble in an excess of the mineral acids, and precipitated by alcohol. The variety of albumen found in the urine differs from mucin principally by its insolubility in an excess of mineral acids. Méhu considers that this substance consists chiefly of pyin, which is found together with serum albumen in the fluid of pus, since, whenever leucocytes can be found in the urine by microscopic examination, acetic acid will render the filtered urine turbid, not always immediately but usually within fifteen minutes. He states also that epithelial cells from the bladder or vagina, if allowed to remain long in the urine, especially when the latter is neutral or alkaline, undergo partial decomposition, one or more of the products of which impart to the filtered urine the property of being coagulable by acetic acid.

*Sugar.* — F. W. Pavy,<sup>2</sup> from numerous analyses of normal urine, finds that the amount of sugar normally present in urine is about 0.565 grains in one pint (about 0.05 gramme in one liter). A large amount of urine (two or three liters) was always required for analysis. It was first precipitated with neutral acetate of lead until no further precipitate was formed. This was collected on a filter paper, washed, suspended in water, and decomposed by sulphuretted hydrogen. The filtrate from the sulphide of lead thus formed, after heating to expel the excess of sulphuretted hydrogen, always gave a precipitate of cupreous oxide when tested by Trommer's test, reacted to the bismuth test, and to the fermentation test when the fluid was previously neutralized. Pavy considers, therefore, that sugar is a constituent of normal urine.

E. Külz<sup>3</sup> mentions a specimen of diabetic urine, which, when undiluted, gave no precipitate of cupreous oxide when Trommer's test was

<sup>1</sup> Journal de Pharmacie et de Chimie, February, 1877, page 106.

<sup>2</sup> Guy's Hospital Reports, 1876, page 413.

<sup>3</sup> Berliner klinische Wochenschrift, October 25, 1875, page 584.

performed or when the urine was boiled with Fehling's solution, but which gave an abundant precipitate if two drops of the urine were diluted with ten cub. cent. of water before performing the above tests. The urine examined with the polariscope showed the presence of 4.9 to 5.8 per cent. of sugar. Külz explains the precipitation after dilution by considering that those substances which prevent the precipitation of cupreous oxide in urine are rendered inert by diluting with water to a sufficient extent, and he prefers diluting the urine in such cases to the method recommended by Maly, which is to filter the urine through animal charcoal, washing the latter, and testing the wash water for sugar.

Biltz<sup>1</sup> states that the ordinary test for grape sugar in urine may be made much more delicate by adding to a saturated solution of common salt in a test-tube a little of the alkaline copper solution, just enough to impart to it a pale blue tint; boil the mixture, and carefully pour the urine to be tested down the side of the test-tube, so as to form a separate layer of fluid. The greater density of the salt solution prevents the two fluids from mixing readily. At the junction of the urine and salt solution will be seen a yellow zone of cupreous oxide, very sharply defined if sugar is present in the urine.

*Urea.* — P. Brouardel<sup>2</sup> reports experiments made with reference to the effect of diseases of the liver upon the formation of urea. He finds that in animals poisoned with phosphorus oil the secretion of urea diminished in proportion to the degeneration of the hepatic cells. In severe cases of icterus which, however, terminated in recovery, the symptoms and size of the liver varied in proportion to the amount of urine and urea; as soon as the symptoms began to improve and the size of the liver to increase, the amount of urine and urea increased. In cases of icterus gravis the urea steadily diminished until it entirely disappeared. In hepatitis suppurativa, in long-continued obstruction of the bile duct by gall-stones and consequent induration of the liver, in cirrhosis and fatty degeneration of the liver, in nutmeg liver and other chronic affections, such as carcinoma and hydatids, the author always found a diminution of the urea corresponding to the disturbance of the functions of the liver cells, and an increase in the amount of urea as these disturbances were removed. In active hyperæmia of the liver the amount of urea in the urine was very much increased. In one experiment on a dog, the hyperæmia being induced artificially, the amount of urea was increased from 9 and 13.8 grammes in twenty-four hours to thirty-two grammes. During an attack of lead colic the amount of urea in the urine is diminished, and increases again to the normal after the cessation of the attack. This is considered by the author to be due to a smaller amount of blood in the liver during the attack.

<sup>1</sup> Fresenius' Zeitschrift für analytische Chemie, 1877, page 347.

<sup>2</sup> Archives de Physiologie, 1876, pages 373 and 551.



In estimating the amount of urea quantitatively M. Yvon<sup>1</sup> has made numerous experiments to determine the relative accuracy of the reagents sodic hypobromite, sodic hypochlorite, and calcic hypochlorite, and has arrived at the following conclusions: (1.) That sodic hypobromite sets free all of the nitrogen in urea at the ordinary temperature. (2.) That sodic hypochlorite sets free only about sixty-nine per cent. of the nitrogen at the ordinary temperature, and when the mixture is warmed about ninety-two per cent. (3.) That calcic hypochlorite sets free about eighty-four and one half per cent. of the nitrogen at the ordinary temperature, and if warmed more nitrogen than the urea contained is evolved, since this reagent at a high temperature attacks kreatine and other nitrogenous constituents of the urine.

Sodic hypobromite, therefore, is the only suitable reagent for estimating the urea in urine by the Knop-Hüfner method.

*Calcic Oxalate in Urine.*—P. Fürbringer<sup>2</sup> has endeavored to determine the influences which govern the formation of oxalic acid in the system. Nearly the total amount of urine passed in twenty-four hours was examined for calcic oxalate by Neubauer's method, which, however, was found by control experiments to give results about twenty-five per cent. too low. He found that oxalic acid (in combination with calcium) is a normal constituent of the urine, and that the amount eliminated in twenty-four hours under normal circumstances rarely exceeds twenty milligrammes. The calcic oxalate found in the sediment, even after the urine has been passed twenty-four hours, by no means represents all of the oxalic acid in the urine, a large amount frequently remaining in solution. The proper solvent of the calcic oxalate in the urine is the acid phosphate of sodium, which also gives to the urine its acid reaction, so that, as a rule, the less the acidity of the urine the larger the amount of calcic oxalate in the sediment, it having been precipitated by the neutralization of the acid phosphate. The amount of calcic oxalate in the urine is not increased by the ingestion of bicarbonate of sodium or lime-water; the former substance, on the contrary, appears to diminish it. There seems to be no constant relationship between a large amount of calcic oxalate in the urine and an interruption of the processes of oxidation, as has heretofore been considered. Ordinarily the uric acid, formed by the metamorphosis of nitrogenous substances, is oxidized to urea and oxalic acid, oxaluric acid being the product of an intermediate step in the process, and the oxalic acid thus formed is still further oxidized and converted into water and carbonic acid. If the normal process of oxidation is impaired the result may be to prevent the conversion of oxalic acid to water and carbonic acid, or to prevent the formation of oxaluric acid, in which case less

<sup>1</sup> *Répertoire de Pharmacie et Journal de Chimie médicale réunis*, August 25, 1876, page 485

<sup>2</sup> *Deutsches Archiv für klinische Medicin*, xviii., page 143.



oxalic acid would be formed. It depends, therefore, upon which of these two reactions fails whether we have an increased or diminished amount of calcic oxalate in the urine.

*Cystinuria.* — A case of cystinuria in an eighteen year old patient is reported by A. Niemann.<sup>1</sup> This patient frequently passed small cystin calculi, the largest of which weighed 0.24 gramme. No other member of his family had cystinuria, but one brother passed urine which contained a large excess of sulphuric acid. The urine of this patient, examined on eight different days, was normal in amount, neutral, contained a normal amount of urea, a greatly diminished amount of uric acid, which averaged only 0.007 per cent., no albumen, and deposited a sediment of cystin. The daily amount of the cystin varied from 0.42 to 0.59 gramme, and seemed to run parallel with the amount of sulphuric acid, so that with a minimum amount of sulphuric acid there was a mere trace of cystin, and *vice versa*. The mean percentage of sulphuric acid (0.1) was somewhat less than the average amount. The percentage of sulphuric acid varied from 0.058 to 0.18, and that of cystin from 0.02 to 0.06; once the amount of cystin was so small that it could not be estimated. Sometimes crystals of triple phosphate were found with those of cystin in the sediment. The great diminution of uric acid noticed in this as well as in other cases led the author to believe that cystin is produced in some way at the expense of the uric acid, probably by some decomposition product of the latter uniting with the sulphur of albumen or sulphuric acid.

Of fifty-two cases of cystinuria analyzed by the author, thirty-seven were in males, fourteen in females, and one unknown. The most frequent age was from twenty to forty in males, and from eleven to thirty in females. Of these fifty-two cases none were met with in persons over fifty years of age, yet F. A. Southam<sup>2</sup> reports one in a patient fifty-seven years of age, who had two years previous had an attack of acute nephritis. Examination of the bladder revealed the presence of a calculus one inch in length. The urine was of a pale amber color, acid, had a specific gravity of 1020, contained a trace of albumen, and deposited a sediment of cystin crystals.

Another case of cystinuria is reported<sup>3</sup> in which cystin was found both in solution and in the sediment. The mean of ten analyses of this urine showed that the daily amount of urine was 1296 cub. cent., that of urea was 38.28 grm., of uric acid 0.5445 grm., of cystin 0.393 grm., and of sulphuric acid 2.439 grm. The amount of cystin was not increased by a purely vegetable diet.

(To be concluded.)

<sup>1</sup> Deutsches Archiv für klinische Medicin, xviii., page 232.

<sup>2</sup> British Medical Journal, 1876, No. 634.

<sup>3</sup> Centralblatt für die medicinischen Wissenschaften, 1876, page 798.

## PROCEEDINGS OF THE NORFOLK DISTRICT MEDICAL SOCIETY.

ARTHUR H. NICHOLS, M. D., SECRETARY.

MAY 8, 1877. Annual meeting. The society met in Roxbury, and was called to order at eleven A. M., the president, DR. JOHN P. MAYNARD, in the chair. Fifty-nine members present.

After the election of officers for the ensuing year, the following paper was read:—

*New Treatment of Hernia.* — DR. J. H. DAVENPORT described in detail the method of treatment employed with success for many years by Dr. Heaton, of Boston, designed to effect a radical cure of hernia.

He prefaced his remarks with an account of the pathology of reducible inguinal hernia, laying particular stress on the fact that its occurrence is largely due to a weakness, either hereditary or acquired, in the fibrous or tendinous structures forming the boundaries not only of the rings but of nearly the whole track of the inguinal canal. This led him (Dr. Heaton) to confine his efforts at cure to these tissues only, by strengthening or restoring which in any way to a natural condition a radical cure might be obtained.

The operations known as Gerly's, Wutzer's, and Wood's, now almost discarded, were ineffectual principally on account of the *inflammation* excited by the plug of adjacent integument, or of the invaginated scrotal tissues, or of both, which after a variable interval, in which apparent success has been obtained, is got rid of by nature and the rupture usually recurs.

He therefore lays it down as a cardinal principle in all operations for the cure of hernia that any inflammation except of the mildest grade must be carefully avoided. These conditions, he thinks, are fulfilled by the *method of tendinous irritation*, a form of treatment he has practiced for many years and in many hundreds of cases, and of the value of which he is well convinced. It may be briefly described as consisting of a mild irritation of those portions of fibrous tissue lying directly in contact with the exterior of the neck of the hernial sac, thickening and consolidating their substance, and effecting a contraction of the openings. This contraction is due not only to the astringent used as an irritant, but also largely to the peculiar normal distribution of the bundles of fibre in the neighborhood of the abdominal rings.

The operation for radical cure was then described. The first steps taken are to return the contents of the hernia and if possible the sac itself within the abdomen.

If, as often happens, the hernial sac cannot be returned, it may remain in the canal without preventing a satisfactory result to the operation. Next, invaginate the right forefinger in the scrotum and find the external abdominal ring, and with the left forefinger pressed perpendicularly upon the integument directly over the ring force the skin with the finger directly into the ring, the spermatic cord and the sac, if in the way, being pushed aside, so that nothing may remain between the external pillar of the ring and the finger except the integument and subjacent superficial fasciæ.

Keeping the left forefinger thus, the needle of the instrument (which re-

sembles the ordinary subcutaneous syringe) is quickly introduced through the skin and superficial fascia, just passing the external pillar and entering the canal at once. The left forefinger is then removed and the beak of the instrument insinuated further on, well into the canal, care being taken to avoid the spermatic cord and the fibrous walls of the canal. To wound any of these parts endangers the success of the operation. The beak of the instrument when thus introduced is in a suitable position for the injection of the liquid irritant, about ten minims of which is introduced drop by drop. The point of the needle should be well swept about while delivering the fluid, should pass around the exterior of the sac if unreduced, and should wet all the fibrous tissues.

After the withdrawal of the needle, which should be quickly done, the previous protrusion should not be allowed to descend, nor the patient be permitted to assume even the sitting position, until a suitable bandage or other means of support has been properly applied.

The irritant consists of Thayer's Fluid Extract of *Quercus Alba*, one half an ounce; of the solid alcoholic extract of *quercus alba*, about fourteen grains. This is to be triturated with the aid of gentle heat for a long time in a mortar until the solution is as perfect as possible. It is well to add to this mixture the sulphate of morphine in the proportion of about one grain to the ounce, in order to diminish the dull aching that follows the operation. A bandage is preferable to a truss after operating, because it can be more accurately adjusted, and can be worn with comfort while lying down. There is a dull pain in the groin, following the operation, but after attaining a moderate degree of acuteness this subsides and disappears altogether in from six to twelve hours. After this there is no pain if the patient avoids exercise. No swelling appears, nor any local redness, nor any increase of temperature in the groin.

For the first week the patient is not allowed to sit up, as there is more or less tenderness during that time. During the second week moderate exercise in walking may be allowed, and after that time he can generally be allowed to return to his avocations. He usually advises his patients to wear the bandage until it is worn out, and then to discard all mechanical support.

It is by this method that he has been fortunate in obtaining a radical cure of hernia in the most difficult cases.

Dr. Davenport then gave an exhaustive explanation of the irritation set up in the part, in place of the acute inflammation which might be expected, and by what circumstances the character and products of irritation were chiefly affected. That protrusion of the rings followed the operation could be proved by clinical demonstration in cases where the anatomical relation of the parts are more than usually distinct and well defined, as in patients of a spare habit of body, in whom the rings have become somewhat dilated through the neglect of proper support by the truss, but whose bodily health is so good as to keep up considerable tone of muscle and fibre.

Dr. Davenport closed his report with the remark that a book was about to be published by Dr. Heaton, containing a full account of his method as applied to the different varieties of hernia.

DR. HENRY A. MARTIN, chairman of the committee appointed to consider the expediency of demanding payment for certain certificates now required gratuitously and under penalties, submitted a report in writing, embodying a detailed plan for securing the combined action of the different district societies in aid of new and improved legislation on the subject.

*Voted*, That the report of this committee be accepted, and that the recommendations therein contained be adopted.

The annual address was then delivered by DR. C. C. TOWER. Subject, Sanitation. Reserved for publication.

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### ZIEMSEN'S CYCLOPÆDIA, VOLUME XII.<sup>1</sup>

THE volume before us is especially interesting as showing the great advance of recent years in the study of the pathology of cerebral disease. How much of the physiology upon which the pathology is in part based may be sound, how reliable some of the symptoms by which a differential diagnosis is made may prove, and whether the improvement in treatment is not due to generally more correct principles rather than to strict reasoning are questions concerning which a great latitude of opinion is allowable. None the less the amount of research displayed by the authors of the various papers, and those they quote from, is very vast. The volume is very properly opened by a short introduction by Nothnagel on the intra-cranial circulation, a clear, concise summary of our present knowledge. The first paper is also by Nothnagel, and treats of anemia, hyperæmia, hemorrhage, thrombosis, and embolism of the brain. The author shows an intimate knowledge of recent studies on the anatomy of the blood-vessels and on the physiology of the brain. He makes excellent use of his anatomical knowledge, showing the relation of the distribution of the arteries and veins to the cause and the consequences of various lesions or diseases. The paper is a very interesting one. Obernier comes next with a paper on tumors of the brain and membranes. The interest of this subject is confined almost wholly to diagnosis, as the treatment, except in the case of syphilis, can be little more than palliative. The diagnosis is very unsatisfactory, not only as to the nature of a lesion or tumor, but as to its situation. We are glad to find that the author is very careful about accepting as conclusive in a physiological sense, or as applicable to man, the investigations in localization by Fritsch, Hitzig, and others. He considers the ophthalmoscope of the very first importance as a means of diagnosing an intra-cranial tumor. He gives also, in opposed columns, certain points of diagnosis between cerebral tumors and apoplexy, softening and abscess respectively, points which we fear are for the most part of little practical value. Heubner gives an interesting account of the various manifestations of syphilis in the central nervous system. In treatment he is a strong advocate of mercury, which he would administer by inunction, lest if given internally salivation should interrupt the treatment. We do not imagine that many American physicians will agree

<sup>1</sup> *Cyclopædia of the Practice of Medicine*. Edited by DR. H. v. ZIEMSEN. Vol. XII Diseases of the Brain and its Membranes. American Edition. New York: William Wood & Co. 1877.

with him in recommending also, when the patient is strong enough, a low diet, and even the "hunger cure." When iodide of potash is indicated he advises large doses, and very properly condemns small and irregular ones. About half the book is filled by Huguenin's article on inflammation of the brain and its membranes. Many, we think, will agree with us in regarding the discussion of the several forms of meningitis, their symptoms, pathology, and ætiology one of the most interesting features of this volume. The section on abscess of the brain concludes with some pages concerning treatment, which we think might as well have been omitted, as the question is a surgical one. In fact, Huguenin states that he has no personal experience, and confines himself pretty closely to quoting surgical authorities. We are rather at a loss to decide whether or not he is sarcastic when, in treating of the use of mercury in traumatic meningitis and encephalitis, as recommended by the "renowned Stromeyer," he writes: "The action sought is the commencement of salivation. An essential obstacle to the success of this action is that the patient very frequently dies before it can be obtained." Hitzig's paper on hypertrophy and atrophy of the brain would be called scientifically curious rather than practical, were it not that he introduces an excellent account of dementia paralytica under the latter heading, on the ground that in this form of disease an atrophy of the cerebellum is often present. This part of his paper will, we think, be found generally interesting.

### THE HAND-BOOK FOR HOSPITAL VISITORS.<sup>1</sup>

THIS excellent little work is printed for the benefit of committees appointed to visit the hospitals of New York city and State. "Women visitors, chiefly, are addressed; for in many domestic details, matters of cleanliness and order and the tone of the discipline to be maintained, matters of nursing, diet, and laundry work, the employments and the general condition of the inmates of an institution, women make the best inspectors." We are ready to admit that there is much truth in this statement, but it might have been as well to have added by way of a caution that women are more inclined than men to aim at too much, especially in matters of discipline. We strongly question, for instance, the wisdom of the law that "the matron should not fail to look into every attendant's dormitory, under the beds, behind the doors, and into the closets at least once a day, and occasionally at other and unexpected times" (page 72). The book treats of construction, ventilation, disinfection, dressing of patients, discipline, and many things which, though apparently trivial, go far towards securing the comfort of the patients. The author, if she — for it evidently is a woman — has not had large experience, has at least studied the subject to good purpose, and we can commend the book not only to visitors but to superintendents and physicians.

<sup>1</sup> No. 13. *State Charities' Aid Association*. New York: G. P. Putnam's Sons. 1877.

THIN'S HISTOLOGY.<sup>1</sup>

THE work before us is a valuable addition to the literature of practical histology. The author states in his preface that it is not meant to supersede any of its predecessors. The book is chiefly devoted to methods of preparation, but as the author's views on some important subjects are quite different from those generally received, he necessarily now and then runs into histology proper. Dr. Thin has clearly rendered himself master of the literature of histology to an unusual degree, and the number of references to the works of others is a most useful feature of the book. Some of Dr. Thin's methods are quite original and, we have no doubt, excellent, but we think that he errs in overtreating his tissues. It does not follow that because certain reagents will convert a given tissue into certain elements, this tissue was formed or consists of an aggregation of these elements. Too little attention is given to the study of living tissues, by which we think more is to be learned than our author admits. As a guide for a beginner we should not term this work as good as either Rutherford's or Schaefer's, but it is excellent for one who has made some progress.

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DAY ON HEADACHES.<sup>2</sup>

THOUGH there is much in this book that is inaccurate and little that is new, it is by no means without merit and value. It is well written, and gives a very good account of some of the forms of headache. The author has made a mistake in dividing headaches into so many classes. If the proximate cause of a headache be, for instance, congestion of the brain, we know we must remove the congestion to effect a cure, and of course the treatment selected will depend on the cause of the congestion; but we do not see the necessity of classifying the headaches according to the nature of the first cause any more than we should place the headache following a blow with a fist in a different category from that following a blow with a stick. If the forms of this disease, or rather of this symptom, were reduced from sixteen to about half a dozen, the book would be much clearer; but as it is it is well worth reading. The remarks on treatment are very sensible.

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## SOCIETY WORK.

THE past month has been an active one in medical circles. It embraces the period of the year set apart by many of our medical societies for their annual meetings, and our pages have consequently been filled with records of the proceedings. First in order of time comes the Gynecological Society, whose second annual meeting was held in this city during the last days of May and the first of June. The attendance, though small, as must naturally be expected in a society of specialists, was nevertheless of a character to arouse considerable interest among the profession at large in this vicinity, as was shown by the attendance of a large number of physicians from Boston and the neighborhood

<sup>1</sup> *An Introduction to Practical Histology.* By GEORGE THIN, M. D. London: Baillière, Tindall, & Co. 1877.

<sup>2</sup> *Headaches: Their Nature, Causes, and Treatment.* By W. H. DAY, M. D., of London. Philadelphia: Lindsay and Blackiston. 1877.



at all its public sessions. It is rare that one has an opportunity to see in a limited assemblage so many distinguished men collected from widely separated sections of the country. There has been great activity in this department of medicine, and nowhere greater perhaps than in this country. Indeed, the profession has found it difficult to keep pace with the innovations which have succeeded one another rapidly. The general conservative tone of the meeting, as shown in the address of the president and in the criticism of the members, was therefore reassuring. We may add that some of the papers read were of a very high order of merit.

The meeting of our national association at Chicago followed a few days later. We have already noticed the more prominent features of this year's work in our remarks upon the president's address, which reviewed so effectually the tasks to be accomplished by the association. The attendance was large, and included the names of many of its oldest friends, who have adhered to it from its origin, through the days of doubtful prosperity to the present period of reform, and whose presence is a guarantee of earnestness of purpose and of a standard of excellence which argues well for the future. A perusal of the proceedings cannot fail to impress one with the fact that, although there were no contributions of any extraordinary degree of excellence, the general standard of the papers was good, and the association has a sphere of usefulness which could not well be occupied by any other organization. In spite of the feeling that exists in regard to Massachusetts, we are sure that the profession of this part of the country, although prone to criticise, are ready to welcome any signs of progress of the association and to rejoice in its prosperity. The association may now congratulate itself that such a spirit of criticism has existed in times past.

We have a word to say also about our own state society, whose meeting took place the following week. The number and variety of the papers reflected credit upon the committee whose duty it was to obtain them. We noticed that Dr. Bowditch advised the national association to appoint a similar committee. We also notice with satisfaction an increasing tendency to debate, indicating augmenting interest in the proceedings, a feature adding to the value of the meeting. We shall comment at some future time upon the character of the papers offered by the reporters from each district. The machinery (if we may venture to use so ominous a term) of our society is so complete and in such excellent order that it can hardly fail to accomplish a great deal of good work.

The New York State Medical Society also held its meeting last month at Albany. Our plan for procuring papers was practically adopted this year with satisfactory results, but this society labors under the manifest disadvantage of holding its meetings at Albany instead of New York. Moreover, in future the meetings are to be held in the winter. It will require considerable enthusiasm on the part of the members to offset these disadvantages.

In conclusion, we would call attention to the approaching meeting of an entirely new medical society. The American Dermatological Association will hold its first meeting at Niagara Falls in September next. That the best men have it in charge is shown by the list of officers. Dr. J. C. White, of this city, is its president, Drs. Duhring and Taylor, of Philadelphia and New York respectively, are its vice-presidents, and Dr. Bulkley, of New York, is its secretary.

## MEDICAL NOTES.

— We would call attention to the recent announcement, in our advertising columns, of the Boylston Prize Committee. At the annual meeting, held June 4th, it was voted that no dissertation worthy of a prize had been offered on either of the subjects proposed for 1877. These were:—

(1.) Are Epidemics and so-called Contagious Diseases necessarily dependent upon Material Agencies, acting through the Stomach or otherwise?

(2.) Athletic Sports, Training, Violent Exercises, etc., as now practiced by Young Men; their Temporary or Permanent Influence on the Health.

The questions proposed for 1878 are:—

(1.) Antiseptic Treatment. What are its essential details? How are they best carried out in practical form?

(2.) Diphtheria. Its Causes, Diagnosis, and Treatment.

The following are those proposed for 1879:—

(1.) The Relation of Animal Contact to the Disease known as Hydrophobia.

(2.) Evidence showing that so-called "Filtth Diseases" are not dependent upon "Filtth."

The excellent selection of subjects shows the interest manifested by the members of the committee in their work, and their action this year, as in the past, is a guarantee that only the highest order of merit will obtain a prize.

— The directors of the Sea-Shore Home announce that the institution was to be opened to receive children suffering from the diseases incident to the summer season on the first of July. Applications for admission must be made to Dr. Brown, 97 Waltham Street, or Dr. Hastings at the Boston Dispensary.

— Professor Lister has at last decided to go to London. An additional chair of clinical surgery has been created for him at King's College, and he is to have thirty beds allotted to him in the hospital. The cordial reception he received during a recent visit to London "must have convinced him," says *The British Medical Journal*, "that the surgical profession in London are prepared to receive him in a manner due to his character and distinguished achievements, and that here he will meet with only friendly rivalry; and that, if he must expect keen and close criticism, he may rely upon generous and friendly appreciation."

— *The Lancet* for May 26, 1877, calls attention to a new form of paralytic disease described by Dr. Macgregor, of Fiji. He found the paralysis to be associated with the presence of a new species of liver parasite. There were eight cases in all, three of which were fatal. The symptoms of the disease come on rapidly, with some fever, followed by generalized imperfect paralysis, with rapid atrophy of the affected muscles, the legs and arms being mainly involved, and the face, tongue, and sphincter muscles being entirely free. The extensors are usually much more affected than the flexors, in this as in some other respects the disease bearing some resemblance to lead palsy. Death is usually due to oedema of the lungs consequent on defective action of the respiratory muscles. No other cause could be found by Dr. Macgregor than the presence in all the fatal cases of a large number of a species of fluke which filled and distended the hepatic bile ducts. The parasite is identical with that

described by Dr. M'Connell in *The Lancet* for August 21, 1875, and named by Dr. Cobbold "*Diastoma sinense*." All Dr. Macgregor's patients were Chinese, as were Dr. M'Connell's, and Dr. Macgregor believes the parasites are introduced by a species of snail which forms an article of their diet. He regards the paralysis as of a reflex origin. The spinal cord was found to be healthy on microscopical examination.

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### THE MAINE MEDICAL ASSOCIATION.

MEMBERS who have attended the meetings of the Maine Medical Association for many years declare that no session has been more successful than that which closed on Thursday noon. Everything conspired to make the gathering agreeable and useful. The attendance was large, the enthusiasm and good feeling were notable, the original papers were numerous, and the signs of progress conspicuous in every direction. The junketings, so common on such occasions, were entirely dispensed with, and nobody seemed to feel that any detriment was sustained in consequence.

A very important alteration in the method of increasing the membership was made. Hereafter candidates must apply by letter and present suitable recommendations to the board of censors a month before the annual meeting, and every member is to be notified of all such applications a fortnight before the meeting. In this way an opportunity is afforded every one to object seasonably to an undesirable addition to the roll.

As usual, a good deal of interest was shown in educational matters. Dr. T. A. Foster, the visitor to the Medical School of Maine, made a report which showed that he had not followed the example of some of his predecessors who have satisfied themselves with a perfunctory discharge of their duties. He had attended many lectures, listened to oral examinations, read examination papers, made inquiries of students, and taken every means to make a thorough and genuine inspection of the school; and, as a result of his work, he expressed the opinion that the institution is an honor to the State and deserves the hearty support of the profession. The only change in the faculty during the last year was in the chair of anatomy, — Dr. S. H. Weeks, of this city, very acceptably occupying the position so long and ably filled by Prof. Thomas Dwight. A written entrance examination was held at the beginning of the term, and resulted in the rejection of a number of candidates. Although the questions were of the most elementary character, it was evident that not a few of the applicants had to exert themselves rather painfully in the effort to solve them, rendering it more than probable that requirements such as are insisted on before admission is granted to ordinary high-schools would have considerably reduced the size of the class. Some of the college boys got hold of the list of questions, and the next number of the *Bowdoin Orient* contained the following supposed conversation, which certainly might have taken place: First Medic, after repeating a simple question in arithmetic, "Did you do that sum?" Second Medic, "Why, no, a fellow would have to understand fractions to do that." It is indeed true that some men who are studying (!) med-

icine and are admitted unchallenged to almost any medical school in the country are wretchedly deficient in the very rudiments of a preliminary education. The teachers in this State, however, are determined that such dullards shall not become pupils of theirs, preferring to have small classes of well-prepared students who will appreciate their teaching, rather than large numbers, a considerable proportion of whom are poorly qualified for their work, and are consequently a hindrance to the rapid progress of their fellows. In this respect they present a decided contrast to the managers of a prominent metropolitan college, who not only admit any male human being who pays the fees, however ignorant he may be, but actually put a premium on unfitness and incapacity by advertising all over the country that "no preliminary examination is required." The Portland School for Medical Instruction, determined to advance its standard of requirements as rapidly as it can consistently with its continued existence, has even gone so far as to announce that, after January, 1878, no person will be received who is not familiar with the elements of Latin and natural philosophy, being in this regard close on to the heels of Harvard. This school, appreciating a need which physicians, especially in country practice, often experience, has recently established a chair of dental surgery, from which will be taught the essential points in the management and treatment of the teeth. The good work done by the Portland school has induced the association to give it official recognition by ordering the annual appointment of visitors to report upon its condition and progress. The association adopted a resolution expressing the opinion that the best interests of the Medical School of Maine would be promoted by its removal to Portland as soon as suitable accommodations can be provided. This would not involve the sundering of its official relations with Bowdoin College, of which it is the medical department, and would give far greater facilities for clinical instruction than can be obtained in any town where there are no hospitals or dispensaries.

The committee to which had been assigned the duty of memorializing the legislature in behalf of a State Board of Health reported that, though much hard work was devoted to the presentation of the case, so little impression was made upon the law-makers that the majority of the committee on the judiciary, to which the bill was referred, reported that legislation was inexpedient. A minority report, however, was presented in favor of the proposed law, but the movement was quickly killed. Some of the arguments against the establishment of the board were indeed wonderful. One Solon said that it would be injurious, because, as soon as the board pointed out the hopelessly unsanitary regions the places would be depopulated; another evidently feared that the habitations of factory operatives would have to undergo too close scrutiny; very many thought it was all a move of the medical men to get their fingers into the treasury; and one horny-handed son of the soil, a capital representative of the "old codger" element, vehemently declared that the board was not needed, as the country was already so healthy that the doctors could not get a living. But we are not discouraged yet, and mean to keep at the work until an efficient law is enacted. It is clear, though, that there is a great deal of labor needed in educating the people up to a point where they can see the absolute necessity of an operative health-bill. It is probable that

the legislators fairly represent their constituents; and, if this is so, the proper way to succeed is to convince the voters that they must send their representatives to Augusta with instructions to favor the movement.

Another committee of the association will besiege the capital next winter, its object being to effect such a change in the laws relative to malpractice that the plaintiff will be made responsible for the costs of court in case he fails to substantiate his charges. Here, as everywhere else, surgeons are continually exposed to the annoyance and expense of malicious suits, which rarely succeed to be sure, but always deplete purses which are never plethoric; and it is high time that some steps were taken to relieve the profession from the harassing attacks of conscienceless patients and their Dodson-and-Fogg allies, who are always eager to take the case "on spec."

But I must leave these matters of general interest at once, or there will be no room in my letter even to mention the various papers on medical topics which were presented. Dr. Hutchinson, of Portland, gave the history of a number of cases of scarlet fever treated with sulpho-carbolate of sodium, which he regards as a remedy of peculiar value in this disease. Dr. Donovan, of Lewiston, read an interesting paper on necrosis. Dr. Brickett, of Augusta, gave an abstract of his paper on Ovariectomy in Maine, according to which there have been nearly one hundred operations, with a little more than sixty per cent. of recoveries. Dr. Greene, of Portland, reported on the best methods of treatment for fractures about the elbow-joint, and exhibited a patient whose shocking deformity he had greatly relieved by tenotomy. Dr. Tewksbury, of Portland, gave a verbal report on the treatment of fibroid tumors of the uterus. Dr. Bray, of Portland, gave the history of a case of strangulated hernia, which almost miraculously recovered. Dr. Brown, of Paris, reported several curious cases of injury about the head. Dr. Gerrish, of Portland, made a second report on the use of salicylic acid by Maine physicians, and presented a paper on the sanitary condition of this city. Dr. Small, of Portland, read an essay on anæsthetics in obstetrics. Dr. Spalding, of Portland, reported on the ophthalmoscope in medicine; Dr. Files, of Portland, on antiseptic surgery; and Dr. Holt, of Portland, on otology. Other papers were read by title, and do not demand especial mention. The volume of transactions of this year promises to contain an unusual amount of original work, and it is hoped that, before many years, the association may be strong enough to decline to publish anything which is not strictly such in every respect.

On Wednesday evening the annual oration was pronounced by Dr. George F. French, of this city, who took Materialism for his subject. His treatment of the theme was scholarly and pleasing, and his essay was received with marked expressions of approbation.

Dr. Theodore H. Jewett, of South Berwick, formerly professor of obstetrics and diseases of women and children in the Medical School of Maine, was elected president for the ensuing year, and Dr. Charles O. Hunt, of Portland, is permanent secretary. The next meeting of the association will be held on the second Tuesday of June, 1878.

GAMMA.

PORTLAND, June 16, 1877.

## COMPARATIVE MORTALITY-RATES FOR THE WEEK ENDING JUNE 23, 1877.

	Estimated Population, July 1, 1877.	Total Mortality for the Week.	Annual Death-Rate per 1000 for the Week.	Death-Rate for the Year 1876.
New York	1,077,228	422	20.37	27.46
Philadelphia	850,856	281	17.17	22.88
Brooklyn	527,880	175	17.24	24.31
Chicago	420,000	125	15.47	20.41
Boston	363,940	106	15.14	23.39
Providence	103,000	24	12.04	18.34
Worcester	52,977	14	13.74	22.00
Lowell	53,678	12	11.62	22.21
Cambridge	51,572	13	13.11	20.54
Fall River	50,370	8	8.26	22.04
Lawrence	37,626			23.32
Lynn	34,524	12	18.07	21.37
Springfield	32,976	11	17.35	19.69
Salem	26,739	6	11.67	23.57

MESSEURS. EDITORS, — Having recently read in the JOURNAL an account of two cases of knot in the umbilical cord, I will send you a description of a case I met with, June 16, 1877.

Mrs. D., aged twenty, a primipara, was delivered of a still-born child. Several days prior to the commencement of labor the amniotic fluid escaped, followed by no marked pains. Labor was short. I was called to remove the placenta, which, however, was expelled a few minutes before my arrival. Found a knot in the cord nearest the placental end. Estimated length of cord, forty inches. No appearance of decomposition in child or cord. Think the child perished during labor.

E. W. PARKER.

CHEROKEE, IOWA, June 27, 1877.

MESSEURS. EDITORS, — In printing a short paper of mine on The Obstetric Bag, in the last number of your valued journal, a paragraph has been omitted which stated, in effect, that the idea of using a basin in obstetrics was suggested by some English writer several years ago.

As the article now stands I appear to claim the invention, whereas I simply recommended as a very convenient form of basin the kidney-shaped pus-basin of hard rubber.

By allowing this correction to appear, you will oblige,

Yours very truly,

GEORGE E. FRANCIS.

BOOKS AND PAMPHLETS RECEIVED. — Calculi found in the Bladder after the Cure of Vesico-Vaginal Fistula. By Henry F. Campbell, M. D. Augusta, Georgia. (Reprint from Vol. I. Gynecological Transactions.)

Pneumatic Self-Replacement of the Gravid and Non-Gravid Uterus. By Henry F. Campbell, M. D. (Reprint from Vol. I. Gynecological Transactions.)

On the Diagnosis of Urethral Stricture by Bulbous Bougies, with Illustrative Cases. By J. William White, M. D. (Reprinted from the Philadelphia Medical Times, May 26, 1877.)

History of a Case of Recurring Sarcomatous Tumor of the Orbit in a Child. Illustrated. Philadelphia: Lindsay and Blakiston. (Reprinted from the Report of the Fifth International Ophthalmological Congress.) 1877.

Report on the Management of the Insane in Great Britain. By H. B. Wilbur, M. D. Albany, 1877. Pp. 74.

Eighth Annual Report of the State Board of Health of Massachusetts. January, 1877. Pp. 498.

A Lost Art in Surgery. By A. B. Crosby, A. M., M. D. (Reprinted from the Archives of Clinical Surgery, New York, 1877.)